LAFAYETTE CONSOLIDATED GOVERNMENT

FINANCE & MANAGEMENT

PURCHASING & PROPERTY MANAGEMENT
705 W. UNIVERSITY AVENUE
P.O. BOX 4017-C
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TEL (337) 291-8262
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August 10, 2011

LUS WAREHOUSE RE-ROOFING

730-11-038

ADDENDUM NO. 2

Dear Sirs:

This addendum is to inform you of the following changes in the specification book:
This addendum shall be considered as part of the original Contract Documents for the above mentioned Project as though it had been issued at the same time and incorporated integrally therewith. All changes to the work and/or additional work contained herein shall be governed by the requirements of the Contract Document. Where provisions of the following supplementary data differ from those of the original Contract Documents, this Addendum shall govern and take precedence.

Item No. 1: The Bid opening date will be **extended by 1 week** the revised opening date will be **Tuesday August 23, 2011 at 10:00 a.m.** Central Standard Time.

Item No. 2: Attached is a revised Louisiana Bid Form to clarify that Alternate No. 1 and Alternate No. 2 are for buildings **A and C.**
Please use the attached revised Louisiana Uniform Public Work Bid Form when placing your bid.

Item No. 3: Section 012300 – Alternates Part 3 Execution (Revised)
3.1 SCHEDULE OF ALTERNATES

A. Alternate No. 1: All labor and materials to provide and install additional new light fixtures and required accessories and relocate existing light fixtures in Buildings **A and C** as noted on construction documents.

B. Alternate No. 2: All labor and material to provide and install new forced air heaters and required accessories in building **A and C** as noted on construction documents.

Item No. 4: Specifications

- Section 131260 – Metal Retrofit Roof Systems
  - Replace in its entirety. Re: attached.

Item No. 5: Prior Approvals – Subject to compliance with the provisions of the Contract Documents, Specifications, The following manufactures may be substituted:

Product	Manufacturer
Metal Roof Systems	ACI Metal Roofing Systems (662/563-3613)

BIDDER SHALL ACKNOWLEDGE RECEIPT OF ALL ADDENDA IN THE SPACE PROVIDED ON THE BID FORM.

LOUISIANA UNIFORM PUBLIC WORK BID FORM

TO: Lafayette Consolidated Government
705 West University Avenue
P.O. Box 4017-C
Lafayette, LA 70502
(Owner to provide name and address of owner)

BID FOR: LUS WAREHOUSE BUILDING REROOFING
1314 Walker Road
Lafayette, Louisiana
(Owner to provide name of project and other identifying information)

The undersigned bidder hereby declares and represents that she/he; a) has carefully examined and understands the Bidding Documents, b) has not received, relied on, or based his bid on any verbal instructions contrary to the Bidding Documents or any addenda, c) has personally inspected and is familiar with the project site, and hereby proposes to provide all labor, materials, tools, appliances and facilities as required to perform, in a workmanlike manner, all work and services for the construction and completion of the referenced project, all in strict accordance with the Bidding Documents prepared by: _____ and dated: _____
(Owner to provide name of entity preparing bidding documents.)

Bidders must acknowledge all addenda. The Bidder acknowledges receipt of the following **ADDENDA:** (Enter the number the Designer has assigned to each of the addenda that the Bidder is acknowledging) _____

TOTAL BASE BID: For all work required by the Bidding Documents (including any and all unit prices designated "Base Bid" * but not alternates) the sum of:

_____ Dollars ($ _____)

ALTERNATES: For any and all work required by the Bidding Documents for Alternates including any and all unit prices designated as alternates in the unit price description.

Alternate No. 1: All labor and material to provide and install additional new light fixtures and required accessories and relocate existing light fixtures in Buildings A and C as noted on construction documents. Add to the base bid the lump sum of:

_____ Dollars ($ _____)

Alternate No. 2: All labor and material to provide and install new forced air heaters and required accessories in Buildings A and C as noted on construction documents. Add to the base bid the lump sum of:

_____ Dollars ($ _____)

Alternate No. 3 *(Owner to provide description of alternate and state whether add or deduct)* for the lump sum of:

N/A Dollars ($ _____)

NAME OF BIDDER: _____

ADDRESS OF BIDDER: _____

_____

LOUISIANA CONTRACTOR'S LICENSE NUMBER: _____

NAME OF AUTHORIZED SIGNATORY OF BIDDER: _____

TITLE OF AUTHORIZED SIGNATORY OF BIDDER: _____

SIGNATURE OF AUTHORIZED SIGNATORY OF BIDDER **: _____

DATE: _____

* The Unit Price Form shall be used if the contract includes unit prices. Otherwise it is not required and need not be included with the form. The number of unit prices that may be included is not limited and additional sheets may be included if needed.

** If someone other than a corporate officer signs for the Bidder/Contractor, a copy of a corporate resolution or other signature authorization shall be required for submission of bid. Failure to include a copy of the appropriate signature authorization, if required, may result in the rejection of the bid unless bidder has complied with La. R.S. 38:2212(A)(1)(c) or RS 38:2212(O) .

BID SECURITY in the form of a bid bond, certified check or cashier's check as prescribed by LA RS 38:2218.A is attached to and made a part of this bid.

SECTION 131260- METAL RETROFIT ROOF SYSTEM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Roof panels.
2. Secondary framing sub-purlin Z sections.
3. Accessories and trim.
4. Insulation.

1.3 SYSTEM PERFORMANCE REQUIREMENTS

A. General: Provide a complete, integrated set of metal retrofit roof system manufacturer's standard mutually dependent components and assemblies that form a complete system capable of withstanding structural and other loads, thermally induced movement, and exposure to weather without failure or infiltration of water into building interior. Include secondary framing, roof panels, and accessories complying with requirements indicated, including those in this Article.

B. Metal Retrofit Roof System Design: Of size, spacing, slope, and spans indicated, and as follows:

1. Secondary Frame Type: Manufacturer's standard rafters and the following girts:

   a. Sub-purlin Z-section

2. Roof Slope: 2 inches per 12 inches (2:12) assumed V.O.J. Match existing.
3. Roof System: Manufacturer's standard lap-seam roof panels.

C. Fire Resistance: Provide roof assemblies with fire-resistance ratings indicated.

D. Structural Performance: Provide metal retrofit roof systems capable of withstanding the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:

1. Design Loads: Comply with load requirements of MBMA's "Low Rise Building Systems Manual."

2. Live Loads: Include vertical loads induced by the building occupancy indicated on Drawings. Include loads induced by maintenance workers, materials, and equipment for roof live loads.
3. Wind Loads: Include horizontal loads induced by a basic wind speed corresponding to a 10-year mean-recurrence interval at Project site.
4. Collateral Loads: Include additional dead loads other than the weight of metal retrofit roof system for permanent items such as mechanical equipment, electrical equipment.
5. Load Combinations: Design metal building systems to withstand the most critical effects of load factors and load combinations.
6. Deflection Limits: Engineer assemblies to withstand design loads with deflections no greater than the following:

    a. Sub-purlin Z section: Vertical deflection of 1/180 of the span.
    b. Roof Panels: Vertical deflection of 1/180 of the span.

7. Design secondary framing system to accommodate deflection of primary building structure and construction tolerances, and to maintain clearances at openings.

E. Thermal Movements: Provide metal retrofit roof systems that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

F. Air Infiltration for Roof Panels: Provide roof panel assemblies with permanent resistance to air leakage through assembly of not more than 0.09 cfm/sq. ft. (0.45 L/s per sq. m) of fixed roof area when tested according to ASTM E 1680 at a static-air-pressure difference of 4 lbf/sq. ft. (192 Pa).

G. Water Penetration for Roof Panels: Provide roof panel assemblies with no water penetration as defined in the test method when tested according to ASTM E 1646 at a minimum differential pressure of 20 percent of inward-acting, wind-load design pressure of not less than 6.24 lbf/sq. ft. (300 Pa) and not more than 12 lbf/sq. ft. (575 Pa).

H. Wind-Uplift Resistance: Provide roof panel assemblies that meet requirements of UL 580 for the following wind-uplift resistance:

1. Class 110.

1.4 SUBMITTALS

A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of the following metal building system components:

1. Sub-purlin Z section.

2. Roof panels.
3. Insulation.
4. Trim and closures.
5. Accessories.
6. Fasteners.

B. Shop Drawings: For the following metal building system components. Include plans, elevations, sections, details, and attachments to other Work.

1. For installed components indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
2. Roof Panel Layout Drawings: Show layouts of panels on support framing, details of edge conditions, joints, panel profiles, corners, custom profiles, supports, anchorages, trim, flashings, closures, and special details. Distinguish between factory- and field-assembled work.

C. Samples for Initial Selection: Manufacturer's color charts showing the full range of colors available for each type of the following products with factory-applied color finishes:

1. Roof panels.
2. Trim and closures.
3. Accessories.

D. Product Certificates: Signed by manufacturers of metal retrofit roof systems certifying that products furnished comply with requirements.

1. Letter of Design Certification: Signed and sealed by a qualified professional engineer. Include the following:

a. Name and location of Project.
b. Order number.
c. Name of manufacturer.
d. Name of Contractor.
e. Building dimensions, including width, length, height, and roof slope.
f. Indicate compliance with AISC standards for hot-rolled steel and AISI standards for cold-rolled steel, including edition dates of each standard.
g. Governing building code and year of edition.
h. Design Loads: Include dead load, roof live load, collateral loads, roof snow load, deflection, wind loads/speeds and exposure, seismic zone or effective peak velocity-related acceleration/peak acceleration, and auxiliary loads (cranes).
i. Load Combinations: Indicate that loads were applied acting simultaneously with concentrated loads, according to governing building code.
j. Building-Use Category: Indicate category of building use and its effect on load importance factors.
k. AISC Certification for Category MB: Include statement that metal building system and components were designed and produced in an AISC-Certified Facility by an AISC-Certified Manufacturer.

E. Erector Certificates: Signed by manufacturer certifying that erectors comply with requirements.

F. Manufacturer Certificates: Signed by manufacturers certifying that they comply with requirements. Include evidence of manufacturing experience.

G. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

H. Material Test Reports: From a qualified testing agency indicating and interpreting test results of steel for compliance with requirements indicated.

I. Warranties: Special warranties specified in this Section.

1.5 QUALITY ASSURANCE

A. Erector Qualifications: An experienced erector who has specialized in erecting and installing work similar in material, design, and extent to that indicated for this Project and who is acceptable to manufacturer. Manufacturer shall provide written documentation of erectors qualifications and experience.

B. Manufacturer Qualifications: A firm experienced in manufacturing metal retrofit roof systems similar to those indicated for this Project and with a record of successful in-service performance.

1. Member of MBMA.
2. AISC Certification for Category MB: An AISC-Certified Manufacturer that designs and produces metal building systems and components in an AISC-Certified Facility.
3. Engineering Responsibility: Preparation of Shop Drawings, testing program development, test result interpretation, and comprehensive engineering analysis by a qualified professional engineer.

C. Source Limitations: Obtain each type of metal building system component through one source from a single manufacturer.

D. Product Options: Drawings indicate size, profiles, and dimensional requirements of metal retrofit roof system and are based on the specific system indicated. Other manufacturers' systems with equal performance characteristics may be considered. Refer to Division 1 Section "Substitutions."

1. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.

E. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Meetings."

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver components, sheets, panels, and other manufactured items so as not to be damaged or deformed. Package retrofit roof panels for protection during transportation and handling.

B. Handling: Unload, store, and erect retrofit roof panels to prevent bending, warping, twisting, and surface damage.

C. Stack materials on platforms or pallets, covered with tarpaulins or other suitable weathertight and ventilated covering. Store retrofit roof panels to ensure dryness. Do not store panels in contact with other materials that might cause staining, denting, or other surface damage.

1.7 PROJECT CONDITIONS

A. Weather Limitations: Proceed with installation only when weather conditions permit retrofit roof panel installation to be performed according to manufacturer's written instructions and warranty requirements.

B. Field Measurements: Verify metal building system foundations by field measurements before metal building fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

1. Established Dimensions for Panels: Where field measurements cannot be made without delaying the Work, either establish framing and opening dimensions and proceed with fabricating retrofit roof panels without field measurements, or allow for field-trimming panels. Coordinate roof construction to ensure that actual building dimensions, locations of structural members, and openings correspond to established dimensions.

1.8 COORDINATION

A. Coordinate installation of roof curbs, equipment supports, and roof penetrations.

1.9 WARRANTY

A. General Warranty: Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.

B. Special Warranty on Panel Finishes: Written warranty, signed by manufacturer agreeing to repair finish or replace metal panels that show evidence of deterioration of factory-applied finishes within specified warranty period. Deterioration of finish includes, but is not limited to, color fade, chalking, cracking, peeling, and loss of film integrity.

1. Warranty Period for Roof Panels: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Sub-purlin Z sections. Subject to compliance with requirements, manufacturers offering products that may be incorporated into the work include but are not limited to the following:

1. Roof Hugger, Inc.
2. Rib-Roof Metal Systems
3. Prior approved manufacturer.

B. Manufacturers: Retrofit lap seam, exposed fastener 36" wide, 24-gauge, prefinished, Kynar 500 roof panels. Subject to compliance with requirements, provide products by one of the following:

1. Architectural Building Components, Inc.
2. Ideal Steel, Inc.
3. MBCI Metal Roof and Wall Systems
4. Mueller, Inc.
5. Prior approved manufacturer.

C. Manufacturers: Roofing underlayments. Subject to compliance with requirements, manufacturers offering products that may be incorporated into the work include but are not limited to the following:

1. W.R. Grace: Grace Ice and Water Shield. 40-mil thick cross laminated, high density polyethylene film and rubberized asphalt adhesive, ASTM D412, ASTM D1970.

D. Valley and Transition Reinforcing: Manufacturer's standard framing, reinforcing members, including metal valley reinforcing plates, flange bracing, clips, and other miscellaneous members. Fabricate framing from cold-formed, structural-steel sheet or roll-formed, primed steel sheet prepainted to comply with the following:

1. Metal Valley and Transition Reinforcing Plates, fabricated from minimum 0.781 inch (14 gauge) thick steel sheet and plates.

2.2 STRUCTURAL-FRAMING MATERIALS

A. Structural Performance: Provide metal retrofit roof system capable of withstanding the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:

1. Engineer metal retrofit roof systems according to procedures in MBMA's "Low Rise Building Systems Manual."
2. Design Loads: Comply with load requirements of MBMA's "Low Rise Building Systems Manual."
3. Live Loads: Include vertical loads induced by the building occupancy indicated on drawings. Include loads induced by maintenance workers, materials, and equipment for roof live loads.

a. Exposure: Category C.
b. Building Occupancy: Warehouse.
c. Importance Factor: Category I.
d. Enclosure Classification: Partially enclosed.

4. Wind Loads: Include horizontal loads induced by a basic wind speed corresponding to a 10-year mean-recurrence interval at Project site.
5. Collateral Loads: Include additional dead loads other than the weight of metal building system for permanent items such as sprinklers, mechanical systems, electrical systems, and ceilings.
6. Auxiliary Loads: Include dynamic live loads, such as those generated by cranes and materials-handling equipment.
7. Load Combinations: Design metal retrofit roof systems to withstand the most critical effects of load factors and load combinations.
8. Deflection Limits: Engineer assemblies to withstand design loads with deflections no greater than the following:

   a. Sub Purlin Z Sections: Vertical deflection of 1/240 of the span.
   b. Roof Panels: Vertical deflection 1/240 of the span.

9. Design secondary framing system to accommodate deflection of metal retrofit roof systems structure and construction tolerances, and to maintain clearances at openings.

B. Sub-purlin Z sections: ASTM A 36/A 36M or ASTM A 529/A 529M.

1. Zinc-Coated (Galvanized) Steel Sheet: ASTM A 446/A 570, G90 (Z275) coating designation; structural quality.

C. Non-High-Strength Bolts, Nuts, and Washers: ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6); carbon-steel, hex-head bolts; carbon-steel nuts; and flat, unhardened steel washers.

1. Finish: Mechanically deposited zinc coating, ASTM B 695, Class 50.

D. High-Strength Bolts, Nuts, and Washers: ASTM A 325 (ASTM A 325M), Type 1, heavy hex steel structural bolts, heavy hex carbon-steel nuts, and hardened carbon-steel washers.

1. Finish: Mechanically deposited zinc coating, ASTM B 695, Class 50.

2.3 PANEL MATERIALS

A. Metallic-Coated Steel Sheet Prepainted with Coil Coating: Steel sheet metallic coated by the hot-dip process and prepainted by the coil-coating process to comply with ASTM A 755/A 755M and the following requirements:

1. Zinc-Coated (Galvanized) Steel Sheet: ASTM A 653/A 653M, G90 (Z275) coating designation; structural quality.
2. Surface: Smooth, flat, mill finish.

B. Panel Sealants: Provide the following:

1. Joint Sealant: ASTM C 920; one-part elastomeric polyurethane, polysulfide, or silicone-rubber sealant; of type, grade, class, and use classifications required to seal joints in panels and remain weathertight; and as recommended by metal building system manufacturer.
2. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape ½ inch (13 mm) wide and 1/8 inch (3 MM) thick.

2.4 FABRICATION, GENERAL

A. General: Design components and field connections required for erection to permit easy assembly and disassembly.

1. Fabricate components in a manner that once assembled in the shop, they may be disassembled, repackaged, and reassembled in the field.
2. Mark each piece and part of the assembly to correspond with previously prepared erection drawings, diagrams, and instruction manuals.
3. Fabricate framing to produce clean, smooth cuts and bends. Punch holes of proper size, shape, and location. Cold-formed members shall be free of cracks, tears, and ruptures.

B. Tolerances: Comply with MBMA's "Low Rise Building Systems Manual": Chapter IV, Section 9, "Fabrication and Erection Tolerances."

C. Secondary Framing: Manufacturer's standard secondary framing members, including sub-purlins Z sections, clips, and other miscellaneous structural members. Fabricate framing from cold-formed, structural-steel sheet or roll-formed, metallic-coated steel sheet galvanized (G-90) coating, unless otherwise indicated, to comply with the following:

1. Sub-purlins: Z-shaped sections; fabricated from minimum 16 ga. galv. thick steel sheet, built-up steel plates, or structural-steel shapes; minimum 2 inch wide flanges, minimum 1 3/8" high with profile to match existing roof panel.
2. Framing for Openings: Channel shapes; fabricated from minimum 0.0598-inch- (1.5-mm-) thick, cold-formed, structural-steel sheet or structural-steel shapes.
3. Miscellaneous Structural Members: Manufacturer's standard sections fabricated from cold-formed, structural-steel sheet; built-up steel plates; or zinc-coated (galvanized) steel sheet; designed to withstand required loads.

D. Bracing: Provide adjustable wind bracing as follows:

1. Bracing: Provide wind bracing using any method specified above, at manufacturer's option.

2.5 ROOF PANELS

A. Lap-Seam Roof Panels: Fabricate from metallic-coated steel sheets prepainted with coil coating, factory formed to provide 36-inch (914-mm) coverage, with raised structural major ribs at 12 inches (305 mm) o.c., and intermediate stiffening ribs symmetrically spaced between major ribs

for full length of panel. Design panels for mechanical attachment to structure using exposed fasteners, lapping major ribs at panel edges. Comply with the following:

1. Material: Zinc-coated (galvanized) prefinished steel.
2. Yield Strength: 50 ksi (345 MPa).
3. Metal Thickness: 24 gauge.

B. Roof Panel Accessories: Provide components required for a complete roof panel assembly including trim, fasciae, mullions, sills, corner units, ridge closures, clips, seam covers, battens, flashings, gutters, sealants, gaskets, fillers, closure strips, and similar items. Match materials and finishes of roof panels, unless otherwise indicated.

1. Closures: Provide closures at eave and ridge, fabricated of same metal as roof panels.
2. Clips: Minimum 0.0625-inch- (1.6-mm-) thick, stainless-steel panel clips designed to withstand negative-load requirements.
3. Cleats: Mechanically seamed cleats formed from minimum 0.0250-inch- (0.65-mm-) thick, stainless-steel or nylon-coated aluminum sheet.
4. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.

C. Exterior Finish: Apply the following coil coating to roof panels and accessories:

1. Fluoropolymer Two-Coat System: Manufacturer's standard two-coat, thermocured system consisting of specially formulated inhibitive primer and fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight, with a total minimum dry film thickness of 1 mil (0.025 mm) and 30 percent reflective gloss when tested according to ASTM D 523.

   a. Durability: Provide coating field tested under normal range of weather conditions for a minimum of 20 years without significant peel, blister, flake, chip, crack, or check in finish; without chalking in excess of a chalk rating of 8 according to ASTM D 4214; and without fading in excess of five Hunter units.
2. Colors, Textures, and Glosses: As selected by Architect from manufacturer's full range for these characteristics.

D. Concealed Finish: Apply pretreatment and manufacturer's standard white or light-colored backer finish, consisting of prime coat and wash coat with a total minimum dry film thickness of 0.5 mil (0.013 mm).

2.6 INSULATING MATERIALS

A. General: Provide insulating materials that comply with requirements and with referenced standards.

1. Preformed Units: Sizes to fit applications indicated; selected from manufacturer's standard thicknesses, widths, and lengths.

B. Unfaced, Flexible Glass-Fiber Board Insulation: ASTM C 612, Type IA; ASTM C 553, Types I, II, and III; or ASTM C 665, Type I; with maximum flame-spread and smoke-developed indices of 25 and 50, respectively; and of the following properties:

1. Nominal density of not less than 1.5 lb/cu. ft. (24 kg/cu. m) nor more than 1.7 lb/cu. ft. (26 kg/cu. m), thermal resistivity of 4 deg F x h x sq. ft./Btu x in. at 75 deg F (27.7 K x m/W at 24 deg C).

2. Thickness: 2" minimum.

3. Combustion Characteristics: Passes ASTM E 136.

2.7 ACCESSORIES

A. General: Provide accessories as standard with metal retrofit roof system manufacturer, and complying with the following:

1. Provide sheet metal accessories of same material and in same finish as roof panels, unless otherwise indicated.

B. Fasteners: Self-tapping screws, bolts, nuts, self-locking rivets and bolts, end-welded studs, and other suitable fasteners designed to withstand design loads. Provide fasteners with heads matching color of roof sheets by means of plastic caps or factory-applied coating. Comply with the following:

1. Fasteners for Roof Panels, flashing and trim (exposed): Self-drilling or self-tapping, zinc-plated, hex-head carbon-steel screws, with a stainless-steel cap or zinc-aluminum-alloy head and EPDM or neoprene sealing washer.
2. Fasteners for Flashing and Trim: Blind fasteners or self-drilling screws with hex washer head.
3. Blind Fasteners: High-strength aluminum or stainless-steel rivets.

C. Flashing and Trim: Form from 24 gauge thick, zinc-coated (galvanized) steel sheet or aluminum-zinc alloy-coated steel sheet pre-painted with coil coating. Provide flashing and trim as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, eaves, rakes, corners, bases, framed openings, ridges, fasciae, and fillers. Finish flashing and trim with same finish system as adjacent roof or wall panels.

1. Opening Trim: Minimum 24 gauge thick steel sheet. Trim head and jamb of door openings, and head, jamb, and sill of other openings.

D. Closures: Closed-cell, laminated polyethylene; minimum 1-inch- (25-mm-) thick, flexible closure strips; cut or premolded to match roof panel profile. Provide closure strips where indicated or necessary to ensure weathertight construction.

2.8 FINISHES, GENERAL

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

2.9 SOURCE QUALITY CONTROL

A. Correct deficiencies in or remove and replace structural framing that inspections and test reports indicate do not comply with requirements.

B. Additional testing, at Contractor's expense, will be performed to determine compliance of corrected Work with requirements.

C. Testing agency will report test results promptly and in writing to Contractor and Architect.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, with Erector present, for compliance with requirements for installation tolerances and other conditions affecting performance of metal retrofit roof system.

1. For the record, prepare written report, endorsed by Erector, listing conditions detrimental to performance of work.
2. Proceed with erection only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean substrates of substances, including oil, grease, rolling compounds, incompatible primers, and loose mill scale that impair bond of erection materials.

B. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition and as specified.

3.3 ERECTION

A. Erect metal retrofit roof system according to manufacturer's written instructions and erection drawings.

B. Do not field cut, drill, or alter structural members without written approval from metal retrofit roof system manufacturer's professional engineer.

C. Secondary Framing: Erect framing true to line, level, plumb, rigid, and secure. Fasten secondary framing to primary framing using clips with field connections using non-high-strength bolts. Hold rigidly to a straight line by sag rods.

1. Provide sub-purlins Z section with tight-fitting closure channels and fasciae.
2. Provide supplemental framing at entire perimeter of openings, including louvers, ventilators, and other penetrations of roof.

D. Bracing: Install bracing in roof where indicated on erection drawings.

E. Framing for Openings: Provide shapes of proper design and size to reinforce openings and to carry loads and vibrations imposed, including equipment furnished under mechanical and electrical work. Securely attach to building structural frame.

3.4 SUB-PURLIN INSTALLATION

A. General: Provide sub-purlins 10'-0" length when possible. Install sub-purlins perpendicular to existing roof panels.

1. Field cutting by torch is not permitted.
2. Fasten sub-purlins to allow free movement due to thermal expansion and contraction.
3. Flash and seal roof panels with weather closures at eaves, rakes, and at perimeter of all openings. Fasten with self-tapping screws.
4. Install screw fasteners with power tools having controlled torque adjusted to secure tightly without damage to washer, screw threads, or sub-purlins. Install screws in predrilled holes.
5. Use aluminum or stainless-steel fasteners for exterior applications and galvanized fasteners for interior applications.
6. Locate and space fastenings in true vertical and horizontal alignment.
7. Locate sub-purlin splices over existing purlins but not over splices. Stagger sub-purlin splices to avoid a redundant lap splice condition.
8. Add additional sub-purlin in wind uplift and high pressure areas.

3.5 RETROFIT ROOF PANEL INSTALLATION

A. General: Provide retrofit roof panels of full length from eave to ridge when possible. Install panels perpendicular to sub-purlins.

1. Field cutting by torch is not permitted.
2. Rigidly fasten eave end of roof panels and allow ridge end free movement due to thermal expansion and contraction. Pre-drill panels.
3. Provide weatherseal under ridge cap.
4. Flash and seal roof panels with weather closures at eaves, rakes, and at perimeter of all openings. Fasten with self-tapping screws.
5. Install screw fasteners with power tools having controlled torque adjusted to compress neoprene washer tightly without damage to washer, screw threads, or panels. Install screws in predrilled holes.
6. Use aluminum or stainless-steel fasteners for exterior applications and galvanized fasteners for interior applications.
7. Locate and space fastenings in true vertical and horizontal alignment.
8. Install ridge caps as roof panel work proceeds.
9. Locate panel splices over, but not attached to, structural supports. Stagger panel

splices to avoid a four-panel lap splice condition.

10. Allow expansion and contraction consistent with existing metal roof system.

B. Lap-Seam Roof Panels: Fasten roof panels to purlins with exposed fasteners at each lapped joint at location and spacing determined by manufacturer.

1. Arrange and nest side-lap joints so prevailing winds blow over, not into, lapped joints. Lap ribbed or fluted sheets one full rib corrugation. Apply panels and associated items for neat and weathertight enclosure. Avoid "panel creep" or application not true to line.
2. Locate and space exposed fasteners in true vertical and horizontal alignment.
3. Provide sealant tape at lapped joints of roof panels and between panels and protruding equipment, vents, and accessories.
4. Apply a continuous ribbon of sealant tape to weather-side surface of fastenings on end laps, and on side laps of nesting-type panels.
5. At panel splices, nest panels with minimum 6-inch (150-mm) end lap, sealed with two (2) continuous strips of butyl sealant and fastened together by interlocking clamping plates.

C. Fastening Patterns: As required by Manufacturer. The following are minimum requirements:

1. Side-laps: Install fastener #4 (1/4"–14 X 7/8" Long Life Lap Tek) at 20" on center. 1/2" X 3/32" tape sealer must be installed between weather infiltration and fastener.
2. End laps: Install fastener #3 (12-14 X Long Life Driller) on each side of major ribs of panel (two (2) fasteners per foot). Stack 2 continuous layers of 1/2" X 3/32" tape sealer on each other and must be installed between weather infiltration and fastener.
3. Rake: Install rake trim with fasteners #4 (1/4" – 14 X 7/8" Long Life Lap Tek) at 12" on center for beginning module and at 6" on center for finishing off module. Install 1/2" X 3/32" tape sealer continuous.

3.6 ACCESSORY INSTALLATION

A. General: Install insulation, ventilators, louvers, and other accessories according to manufacturer's written instructions, with positive anchorage to building and weathertight mounting. Coordinate installation with flashings and other components.

B. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide for thermal expansion of metal units; conceal fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.

1. Install exposed flashing and trim that is without excessive oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof and weather-resistant performance.
2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet (3 m) with no joints allowed within 24 inches (610 mm) of corner or intersection. Where lapped or bayonet-type expansion provisions cannot be used or would not be sufficiently weather resistant and waterproof,

form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with mastic sealant (concealed within joints).

3. Separations: Separate metal from incompatible metal or corrosive substrates by coating concealed surfaces, at locations of contact, with asphalt mastic or other permanent separation as recommended by manufacturer.

B. Pipe Flashing: Form flashing around pipe penetration and roof panels. Fasten and seal to roof panel as recommended by manufacturer.

C. Insulation: Install continuous batts, butt joints and seams together to form continuous uninterrupted layer over existing roof panels, and between sub-purlins, under metal retrofit roof system.

3.7 ERECTION AND LOCATION TOLERANCES

A. Roof Panel Installation Tolerances: Shim and align units within installed tolerance of 1/4 inch in 20 feet (6 mm in 6 m) on slope and location lines as indicated and within 1/8-inch (3-mm) offset of adjoining faces and of alignment of matching profiles.

3.8 FIELD QUALITY CONTROL

A. Testing Agency: Owner at his option will engage a qualified independent testing agency to perform field quality-control testing.

B. Testing agency will report test results promptly and in writing to Contractor and Architect.

3.9 CLEANING AND PROTECTION

A. Repair damaged galvanized coatings on exposed surfaces with galvanized repair paint according to ASTM A 780 and manufacturer's written instructions.

B. Roof Panels: Remove temporary protective coverings and strippable films, if any, as soon as each panel is installed. On completion of panel installation, clean finished surfaces as recommended by panel manufacturer and maintain in a clean condition during construction.

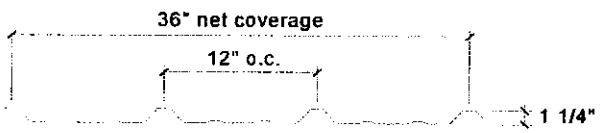
1. Replace panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

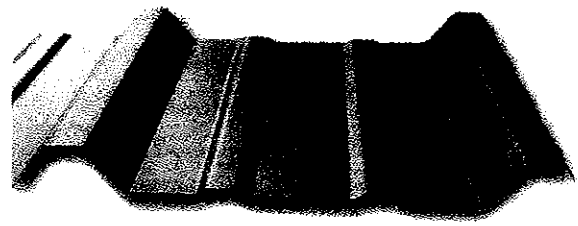
END OF SECTION 131260

ACI

METAL ROOFING SYSTEMS

"PBR" Panel





Product
PBR panel may be used for roofing, sidewall, soffit, and liner panel applications.

Physical Description
PBR panels, designed for roof, exterior wall, soffit and liner panels, in agricultural, commercial or industrial settings, consists of fastening the panel utilizing through panel fastening and side lap installation. The panel has 1 ¼" major ribs spaced at 12" o.c., with total coverage of 36". Panels are fabricated from 22, 24, or 26 gauge steel. Galvalume® coated or painted sheets will provide a long-lasting weathering membrane and has a proven weather resistance in excess of 20 years.

Application
Roof covering as well as interior and exterior wall covering for new projects or retrofit construction.

Panel and Flashing Materials
PBR panels are made of 22, 24 or 26 gauge steel, 50,000 psi minimum yield strength (ASTM A792-06a, Grade 50, Class 1), coated with AZ50 (minimum) aluminum/zinc alloy for painted finish or AZ55 aluminum/zinc alloy for unpainted finish.

The Flashing and trim will be 24 or 26 gauge steel 50,000 psi minimum yield strength (ASTM A792, SS Grade 50, Class 1), coated with AZ50 (minimum) aluminum/zinc alloy for painted finish zinc or AZ55 aluminum zinc for unpainted finish.

Fasteners
PBR panels may attach to secondary framing (purlins or girts) using self-drilling steel screws, #12 x 1 ¼" hex head w/neo washer. **PBR** panels attaching to wood decking use #10 x 1 ½" hex head, wood grip w/washers. Fasteners available for use with up to 6" of blanket insulation. **PBR** stitch screws, screws at side laps, are ¼" – 14 x 7/8" self-drilling screws w/neo washers.

Sealants
All sealants are a 100% solids, asbestos-free butyl tape sealant that is highly rubbery, tacky, reinforced compound designed for sealing metal lap joints. Application temperatures of the sealant is -5° F to 120° F and service temperatures from -40° F to 200° F.

Finishes
PBR panels available in ***ACI 2000*** (Advanced Exterior Finishes) and ***ACI 3000*** (Premium 70% PVDF Coating System) colors. All ***ACI 2000*** and ***ACI 3000 KYNAR*** finishes are provided by VALSPAR and come with extended finish warranties. Upon request, Energy Star, LEED, and material safety documentation are available.

Warranty
Up to 20-year material and paint finish warranty information available upon request. No Weather-tightness Warranty available.

Maintenance
Routine maintenance is required to maximize the life expectancy of the panel. Routine inspections of the roof, walls, flashings, gutter and fasteners insure that the investment will maximize performance of all new products.

Product Notes
"Oil-canning," slight waviness inherent in light gauge metal may exist in this panel. This minor waviness does not affect the finish or structural integrity of the panel and is therefore not a cause for rejection.

Galvalume® is an internationally recognized trademark of BIEC International, Inc., and its licensed partners.

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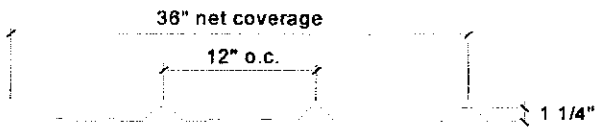
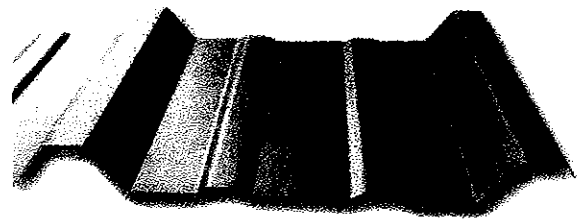
ACI
METAL ROOFING SYSTEMS

FM APPROVED

MBMA

"PBR" Panel





SECTION PROPERTIES FOR ACI'S "PBR" PANEL

GAUGE OF STEEL	STEEL YIELD KSI	STEEL THICK. IN.	TOTAL THICK. IN.	PANEL WEIGHT # / FT.^{2}	TOP IN COMPRESSION			BOTTOM IN COMPRESSION			F_b KSI
					I_x IN.^{4}/FT^2	S_x IN.^{3}/FT^2	M_{xxo} KSI	I_x IN.^{4}/FT^2	S_x IN.^{3}/FT^2	M_{xxo} KSI	
26	50	0.0180	0.0196	0.96	0.041	0.042	1.80	0.034	0.048	1.44	30
24	50	0.0227	0.0243	1.19	0.058	0.060	2.37	0.045	0.062	1.86	30
22	50	0.272	0.0288	1.41	0.073	0.079	2.37	0.057	0.075	2.25	30

Maximum Total Uniform Loads in psf

	Span Type	L=3'-0"	L=3'-6"	L=4'-0"	L=4'-6"	L=5'-0"	L=6'-0"	L=7'-0"	L=7'-6"
26 Ga.	1	91 / -103	67 / -76	52 / -59	41 / -47	33 / -38	23 / -26	17 / -19	15 / -17
	2	66 / -74	57 / -63	50 / -51	44 / -41	38 / -33	26 / -23	19 / -17	17 / -15
	3	75 / -84	65 / -72	57 / -63	50 / -51	45 / -41	33 / -29	24 / -21	21 / -18
	4	73 / -80	62 / -69	54 / -60	48 / -47	44 / -38	31 / -27	23 / -20	20 / -17

Maximum Total Uniform Loads in psf

	Span Type	L=3'-0"	L=3'-6"	L=4'-0"	L=4'-6"	L=5'-0"	L=6'-0"	L=7'-0"	L=7'-6"
24 Ga.	1	131 / -135	96 / -100	74 / -77	59 / -61	48 / -49	33 / -34	24 / -25	21 / -22
	2	103 / -93	88 / -80	76 / -70	60 / -58	49 / -47	34 / -33	25 / -24	22 / -21
	3	117 / -106	100 / -91	87 / -79	75 / -71	61 / -59	43 / -41	31 / -30	27 / -26
	4	112 / -102	96 / -87	84 / -76	70 / -68	57 / -55	40 / -38	29 / -28	26 / -25

Maximum Total Uniform Loads in psf

	Span Type	L=3'-0"	L=3'-6"	L=4'-0"	L=4'-6"	L=5'-0"	L=6'-0"	L=7'-0"	L=7'-6"
22 Ga.	1	172 / -164	127 / -121	98 / -93	77 / -74	63 / -60	44 / -41	32 / -31	28 / -27
	2	144 / -111	120 / -96	92 / -84	73 / -74	59 / -63	41 / -44	30 / -32	27 / -28
	3	164 / -127	140 / -109	115 / -95	91 / -84	74 / -76	52 / -54	38 / -40	33 / -35
	4	157 / -122	135 / -104	107 / -91	85 / -81	69 / -73	48 / -51	36 / -37	31 / -33

NOTES:

1. Section Properties have been calculated in accordance with Supplement 2004 to the North American Specification, 2001 Edition, for the Design of Cold-Formed Steel Structural Members.
2. Steel Panels have a protective coating of either aluminum-zinc alloy or G-90 galvanizing.
3. The base steel thickness was used in determining section properties.
4. Minimum Yield Strength of 22, 24, 26 gauge steel 50,000 psi.
5. The deflection loads were calculated from a deflection limit of Span/60 for structural roof panels.
6. The loads shown do not include allowance for the panel weight.
7. Positive Load is applied inward toward the panel supports and is applied to the outer surface of the panel cross-section. Negative Load is applied in the opposite direction.

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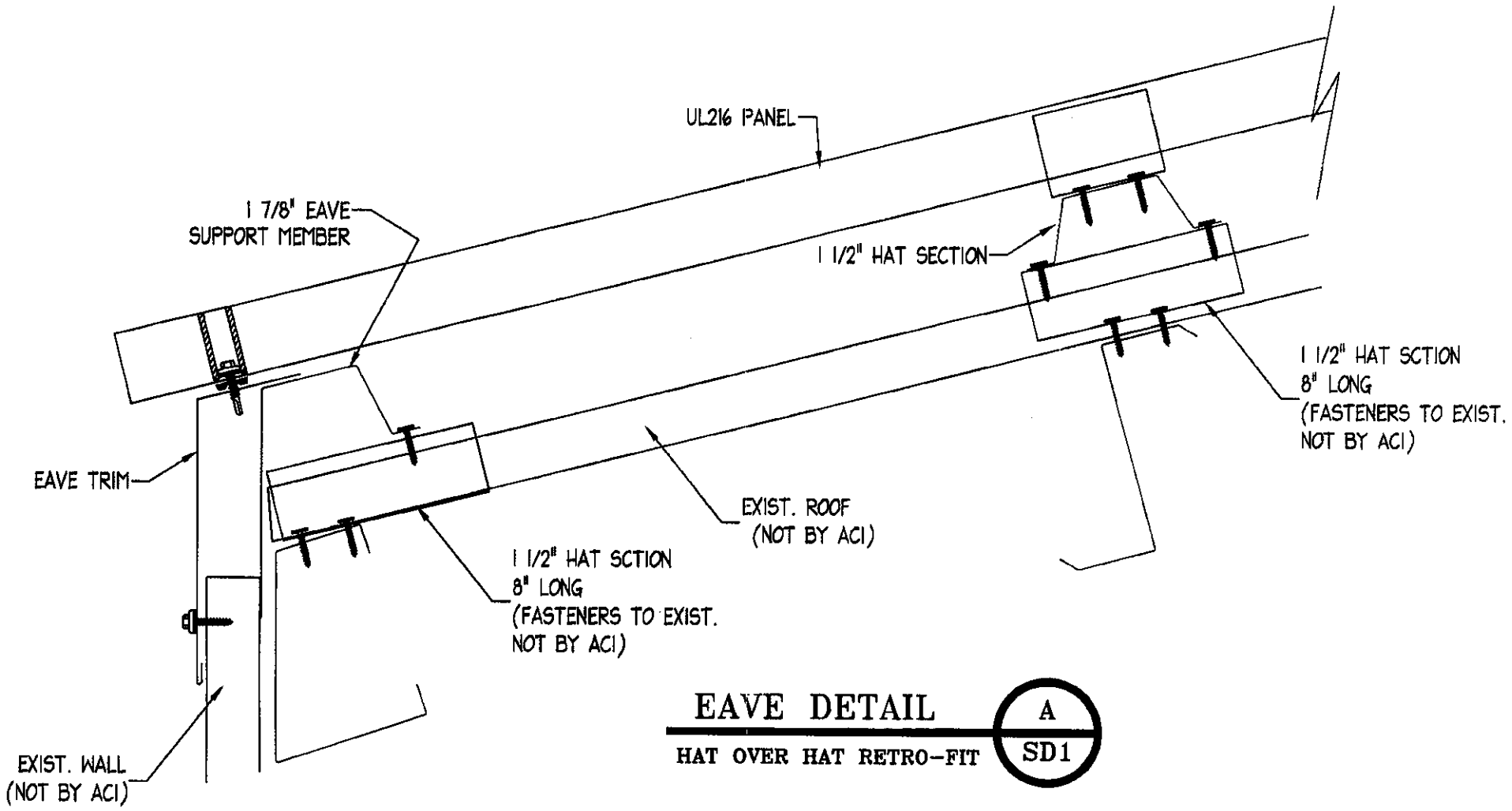
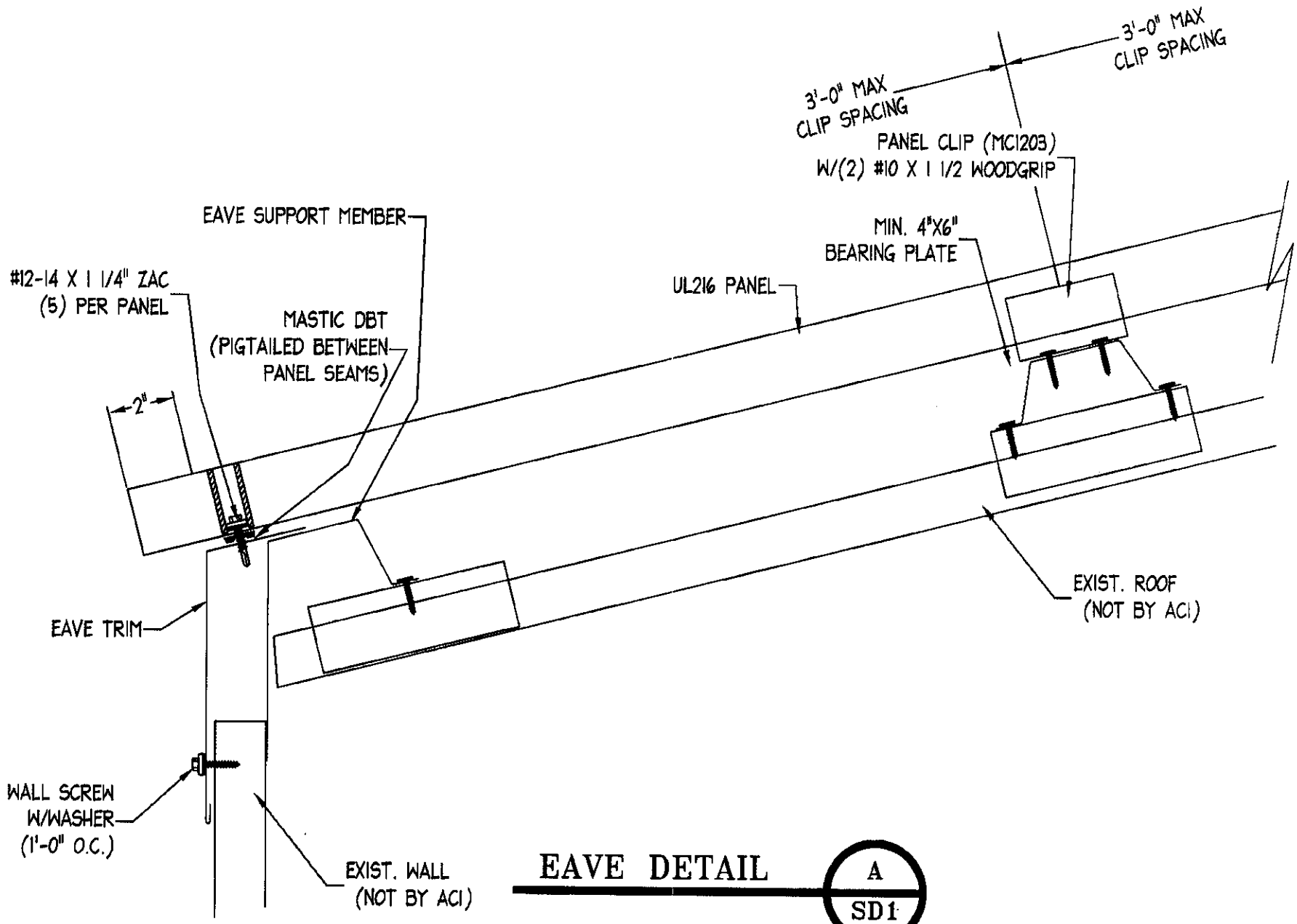


EAVE DETAIL

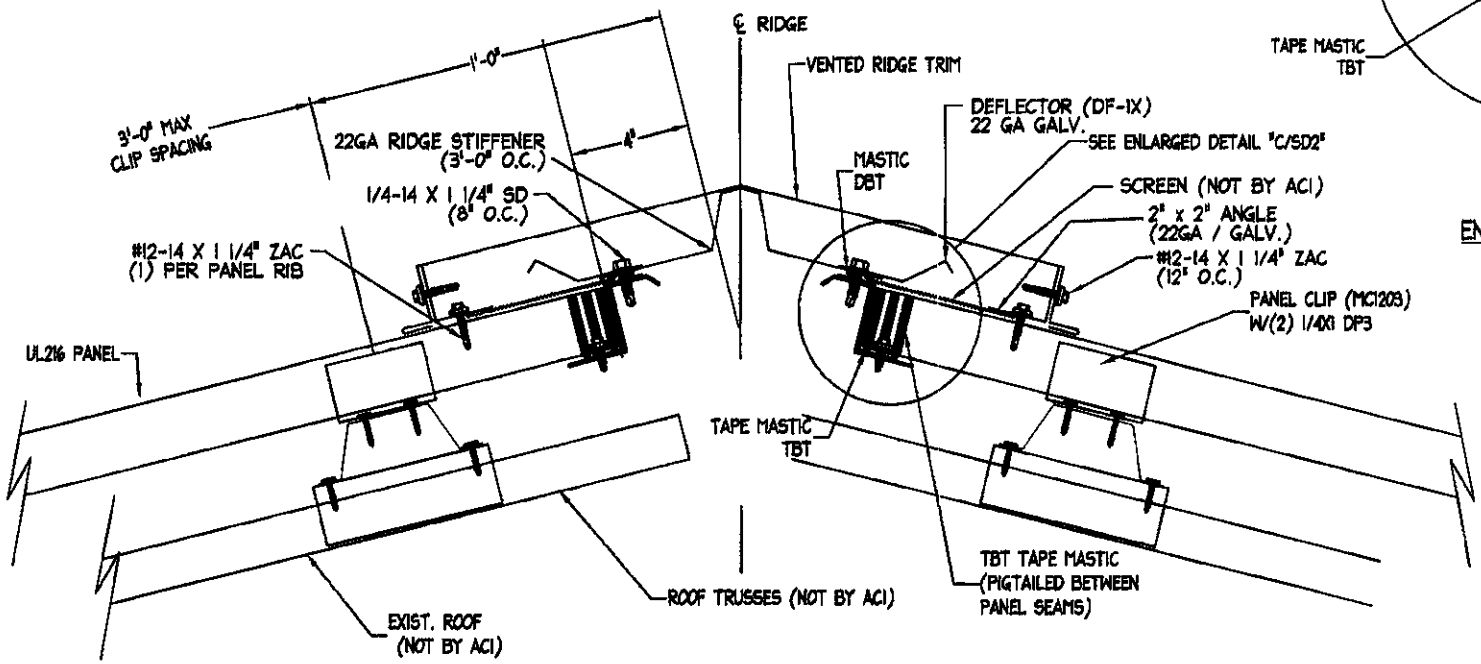
HAT OVER HAT RETRO-FIT

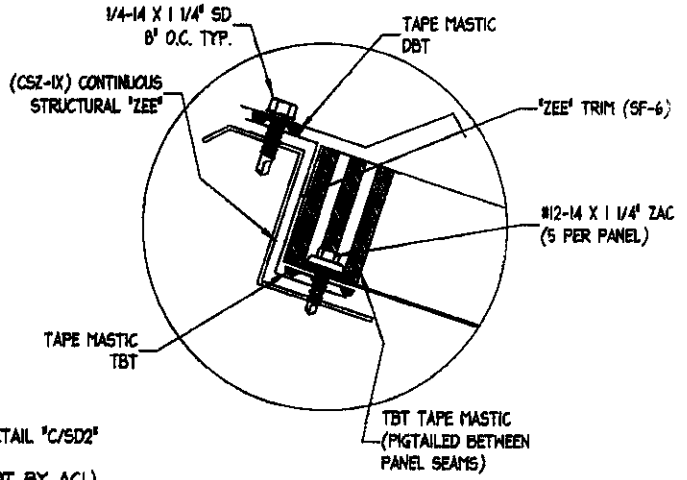
A / SD1



EAVE DETAIL

A
SD1





ENLARGED DETAIL "C"

RIDGE DETAIL B / SD2